

**Parental awareness about the presence of permanent first molars and caries experience in 6-9-year-old children- A cross sectional study in tertiary dental care setting**

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**Abstract**

**Introduction:** The first permanent molar (FPM) is considered as the cornerstone teeth in the dentition and dental development. So that it is critical for parents to be aware of the existence, timing, and manner of tooth eruption, since these factors can have a significant impact on a child's oral health and, as a result, sustaining oral and dental health.

**Aim:** The study aimed to evaluate the awareness of parents about the presence of first permanent molar and the caries experience in 6–9-year-old children.

**Materials and methods:** This analytical cross-sectional study was conducted on 320 children between 6-9 years, who have reported in OPD in the department of Pedodontics, Government Dental college, Kottayam. Convenience sampling technique, was adopted in this study. Data collection tool was a validated questionnaire and intra oral examination. Intraoral examination was

done using a dental explorer, dental mirror, and def and DMFT index were recorded according to the World Health Organization criteria. During clinical evaluation of children, parents were asked to fill questionnaire. Data were analysed using independent T test and one-way ANOVA test.

**Results:** Total 320 children and their parents were participated in the study. The median score of parental awareness about first permanent molar was 7. Thus categorizing parents as category 1 and 2. Mean DMFT/def score of category 1 was  $5.23 \pm 2.70$  and Mean DMFT/def score of category 2 was  $4.32 \pm 2.47$ . Result showed a significant association between parental awareness about first permanent molar and caries experience of the children ( $P=0.002$ ). Also evaluated the correlation between parents education level and caries experience of children and found that there was a significant relation between DMFT/def score and mothers ( $p=.027$ ) and fathers ( $p<0.001$ ) education level.

**Conclusion:** study revealed that there is significant association between parental awareness about first permanent molar and children's caries experience. so it is necessary to pay attention to early parental education, prevention, and treatment.

**Keywords:** first permanent molar, parents, dental caries, awareness.

### Introduction

Dental caries, or tooth decay, has been suggested as the most common chronic disease in childhood(1). Dental caries is a multifactorial infectious disease of the dentition characterized by localized destruction of the tooth. The mineralized tissues of the tooth are dissolved by organic acids produced by tooth-dwelling bacteria, and the ensuing carious lesion spreads inward from the tooth surface.

Dental caries is a multifactorial disease involving interactions among three principal factors: the host, primarily the teeth and saliva; the microbiota, primarily acid-producing bacteria on the tooth surface; and the diet, primarily the availability of fermentable carbohydrate(2).

An inappropriate diet of the child and uneven consumption of chocolate and sweets, as well as an inability to properly monitor oral cavity, cause tooth decay. Because children are unaware of the need of oral hygiene and are unable to clean their teeth properly, it is the obligation of their parents to provide primary oral and dental care.

The first permanent molar (FPM) is considered as the cornerstone teeth in the dentition and dental development, as it plays a vital role in occlusion. Besides that it plays an important role in mastication, correct positioning of other teeth, aesthetics and preservation of vertical orientation

It is, nevertheless, the tooth that is most commonly and quickly affected by dental caries. Indeed, the early time of its eruption ie around 6-7 years ,when hygiene is difficult and poorly controlled makes it particularly susceptible to carious disease(3)

Due to painless slow eruption of permanent first molar in distal surface of primary second molars without primary tooth loss, parents usually consider these teeth as deciduous teeth(4). Thus it is denied of sanitary care and parental notice.

According to the key role of FPMs in children's mouth, it is necessary for parents to be aware of the existence, timing and manner of tooth eruption which can play a key role in enhancing the child's oral health and, as a result, sustaining oral and dental health. Thus the main aim of this study was to evaluate the awareness of

parents about the presence of first permanent molar and the caries experience in 6-9 year old children.

**Materials and methods**

In this analytical cross-sectional study, a total of 320 children between 6-9yrs years were selected from children who has reported in OPD in department of Pedodontics, Government Dental College, Kottayam. Informed consent were obtained from their parents before clinical evaluation. The inclusion criteria were children in whom the FPMs had erupted and did not have any systemic disease or dental developmental anomalies. Convenience sampling technique, was adopted in this study. Data collection tool was a questionnaire and an examination. The questionnaire's validity was assessed by reviewing the literature and under the supervision of the professors who are included in the expert panel of the questionnaire. A pilot study of 20 parents were conducted for measuring the reliability of the questionnaire, which were used to prepare the final questionnaire During clinical evaluation of children, parents were asked to fill questionnaire. The questions included child’s dental history, parental awareness about the presence of FPMs, parental education. Intraoral examination was done using a dental explorer, dental mirror, and def and DMFT index were recorded according to the World Health Organization criteria. Data were analysed using independent T test and one-way ANOVA test. The level of significance was set to  $P < 0.05$

**Results**

The present study assessed the parental awareness about the presence of first permanent molar and the caries experience in 6–9-year-old children. The median score of parental awareness about first permanent molar was 7(table 1).

Table 1: Total score of questionnaires filled by participants parents.

Total score	
N	320
Mean	6.15
Median	7.00
Mode	7
Std. Deviation	1.342
Range	6
Minimum	2
Maximum	8

Thus categorising parents below score 7 as poor awareness-category 1 and parents with score 7 and above as average awareness- category 2. Mean DMFT/def score of category 1 was  $5.23 \pm 2.70$  and Mean DMFT/def score of category 2 was  $4.32 \pm 2.47$ (table 2).

Table 2: Mean DMFT/def score of category 1 and 2.

Group Characteristics					
	Total score-cat	N	Mean	Std. Deviation	Std. Error Mean
DMFT/def score	1	156	5.23	2.707	.217
	2	164	4.32	2.479	.194

**Total Score (less than 7 =1) (All other value =2)**

Present study revealed that there is a significant association between parental awareness about first permanent molar and caries experience of the children( $P=0.002$ ) (table 3).

**Table 3. Relationship between Total score and DMFT/def score**

Independent Samples Test							
	t	Df	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference		P value
					Lower	Upper	
dmft/def score	3.130	318	.908	.290	.337	1.478	0.002

With regards to the correlation of Dmft with quantitative variables, the following results were obtained.

Mothers' education: mothers were categorised according to their education level. Group 1 – post graduates, group 2 – graduates, group 3 - higher secondary level and group 4 – secondary level. Then mean Dmft /def score of these categories were calculated (table 4). One-way Anova test was used for evaluating the relationship between Dmft/def score and mothers education and found that, there is a significant relation between DMFT/def and mothers education (p=.027) (table 5). The lowest DMFT was in children whose mothers had a bachelor's degree or higher.

**Table 4. Mean DMFT/def score and mothers education**

Descriptives								
DMFT/def score								
	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
1	37	4.65	2.584	.425	3.79	5.51	0	10
2	191	4.46	2.474	.179	4.10	4.81	0	10
3	70	5.47	2.957	.353	4.77	6.18	0	13
4	22	5.41	2.520	.537	4.29	6.53	1	10
Total	320	4.77	2.628	.147	4.48	5.05	0	13

**Table 5. One-way anova test for evaluating relationship between DMFT/def score and mothers education**

ANOVA				
dmft/def score				
	Sum of Squares	Df	Mean Square	Sig.
Between Groups	62.857	3	20.952	.027
Within Groups	2140.565	316	6.774	
Total	2203.422	319		

Fathers' education: Fathers were categorised according to their education level. Group 1 – post graduates, group 2 – graduates, group 3 - higher secondary level and group 4 – secondary level. Then mean Dmft /def score of these categories were calculated (table 6). One-way Anova test was used for evaluating the relationship between Dmft/def score and fathers education. Result shows that there is a significant relation between DMFT/def and Fathers education (p<0.001) (table 7). The lowest DMFT was in children whose father's had a bachelor's degree or higher.

**Table 6. Mean DMFT/def score and Fathers education**

Descriptives								
dmft/def score								
	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
1	64	3.55	2.329	.291	2.96	4.13	1	13
2	135	4.02	2.361	.203	3.62	4.42	0	12
3	66	7.50	1.791	.220	7.06	7.94	5	11
4	55	4.73	2.121	.286	4.15	5.30	1	7
Total	320	4.77	2.628	.147	4.48	5.05	0	13

**Table 7. One-way anova test for evaluating relationship between DMFT/def score and Fathers education**

ANOVA				
dmft/def score				
	Sum of Squares	Df	Mean Square	P value
Between Groups	663.220	3	221.073	<0.001
Within Groups	1540.202	316	4.874	
Total	2203.422	319		

The result of this study is that many parents are not aware of the presence of first permanent molar.

**Discussion**

The result of this study indicates that there was statistically significant association between parental awareness of the presence of first permanent molar and mean DMFT/def score or otherwise caries experience of children. Furthermore, educational level of parents significantly were associated with the mean DMFT/def score.

First permanent molars are formed when children cannot do proper oral health activities. For this reason there is a remarkable role for parents in maintaining oral health of

their children. Unfortunately, the lack of awareness of many of them leads to serious damage to child's dental health.

This study revealed that there is a significant association between parental awareness about first permanent molar and caries experience of the children. Likewise, study conducted by Zouashkiani and Mirza Khan(4), shows that there is significant difference between the mean of DMFT of the first permanent molar and parent's awareness of the presence of this tooth of their children. However studies conducted by Vejdani et al (5), Hashemi et al (6) and Sadat-Sajadi et al.(7) reported that there is no correlation between the parental knowledge and DMFT score of first permanent molar in their respective studies.

Heydari et al (8) stated that there is a significant relationship between DMFT and father's education which is in agreement with this study, however in their study they also noticed that there is no significant association between DMFT and father's education, which is in contrary to present study. According to Ravera et al(9), there is a substantial association between parental education and children's dental health, which is consistent with our findings. Study by Akpabio et al(10) also supports our finding, they reported that mothers who had studied more years were more aware of oral hygiene issues.

Conversely, Vejdani et al(5) in their study found that parental education had no correlation with DMFT score of first permanent molar.

Considering the vital role of first permanent molars in maintaining dental integrity, the dentist bears responsibility in educating parents about the eruption time of first permanent molar and its importance.

## Conclusion

Children with mothers' awareness of presence of FPM had lower caries experience. Caries experience of children were also influenced by educational level of parents. Early parental education about first permanent molar and their importance can prevent unpleasant dental scenarios for their children.

## Abbreviations

OPD – Out patient department

FPM – First permanent molar

DMFT index – Decay, Missing, Filled teeth index

Def index - Decay, extracted, filled teeth index

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